

Instructional Timeline – Kindergarten Mathematics – 3rd Nine Weeks	
Unit 3B: Direct Measurement Comparisons – Length, Area, & Temperature	
Suggested Time Frame: ≈ 3 weeks	
Introduction	The Instructional Timeline, as required by RRISD Local Board Policy (EG – Local, 246909), breaks down the content of each nine-week period into smaller, more manageable units of instruction.
Description	Students begin to develop measurement concepts. Students will identify and directly compare the attributes of length, area, and relative temperature to solve problems and answer questions. The student uses comparative language (longer than, shorter than....) to explain thinking. Ongoing measurement concepts include reading a calendar and using time to describe, compare, and order events.
TEKS/SEs taught during this period	<p>K.2 Number, operation, and quantitative reasoning. The student describes order of events or objects. K.2B Name the ordinal positions in a sequence including first, second, third.</p> <p>K.10 Measurement. The student directly compares attributes of length, area, weight/mass, capacity, and/or relative temperature. The student uses comparative language, to solve problems and answer questions. K.10A Compare and order two or three concrete objects according to length (longer/shorter than, or the same) K.10B Compare the area of two flat surfaces of two-dimensional figures (covers more, covers less, or covers the same). K10E Compare situations or objects according to relative temperature (hotter/colder than, or the same as).</p> <p>Ongoing – Using Math in the Real World</p> <p>K.6 Patterns, relationships, and algebraic thinking. The student uses patterns to make predictions. K.6B Count by ones to 100.</p> <p>K.11 Measurement. The student uses time to describe, compare, and order events and situations. K.11C Read a calendar using days, weeks, and months.</p> <p>K.12 Probability and statistics. The student constructs and uses graphs of real objects or pictures to answer questions. K.12A Construct graphs using real objects or pictures in order to answer questions K.12B Use information from a graph of real objects or pictures in order to answer questions</p> <p>K.13 Underlying processes and mathematical tools. The student applies Kindergarten mathematics to solve problems connected to everyday experiences and activities in and outside of school. K.13A Identify mathematics in everyday situations. K.13B Solve problems with guidance that incorporates the processes of understanding the problem, making a plan, carrying out the plan, and evaluating the solution for reasonableness. K. 13C Select or develop an appropriate problem-solving strategy including drawing a picture, looking for a pattern, systematic guessing and checking or acting it out in order to solve a problem. K.13D Use tools such as real objects, manipulatives, and technology to solve problems.</p> <p>K.14 Underlying processes and mathematical tools. The student communicates about</p>

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	<p>Kindergarten mathematics using informal language.</p> <p>K.14A Communicate mathematical ideas using objects, words, pictures, numbers and technology.</p> <p>K.14B Relate everyday language to mathematical language and symbols.</p> <p>K.15 Underlying processes and mathematical tools. The student uses logical reasoning.</p> <p>K.15A Justify his or her thinking using objects, words, pictures, numbers, and technology.</p>
Generalizations	<p>The student understands that:</p> <ol style="list-style-type: none"> 1. We use comparative language to communicate relative size (length and area) and relative temperature.
Essential Questions	<ul style="list-style-type: none"> • Why do we measure? • What can we measure? • What data (information) do we get when we measure? • How do we use the information?
Core Components	<p>Including Statements</p> <ul style="list-style-type: none"> • Directly compares real objects without using units or measurement tools • Uses comparative language – longer/shorter than; hotter/colder than; same as • Uses visual estimation as well as guess-and-check strategies to determine which: <ul style="list-style-type: none"> ✓ is shorter or longer when given 2 or 3 objects ✓ 2-dimensional object covers more or less area • Using direct comparison, identifies objects that are equal in length and objects that have the same area • Uses attributes to compare: <ul style="list-style-type: none"> ✓ length to decide if one object is longer than another ✓ area to decide if one object covers more than another • Orders two or three objects according to their length using direct comparison (without using rulers or any measurement tools) • Identifies hot and cold in everyday experiences; determines relative temperature (hotter than, colder than, or the same as) without using a thermometer
Curricular Connections (within, between, and among disciplines)	<p><u>Related Science TEKS</u></p> <p>K.2E Communicate observations with others about simple descriptive investigations.</p> <p>K.5A observe and record properties of objects, including relative size and mass, such as bigger or smaller and heavier or lighter, shape, color, and texture.</p> <p>K.5B Observe, record, and discuss how materials can be changed by heating or cooling.</p> <p>K.8A Observe and describe weather changes from day to day and over seasons</p>
Required Lessons	
Recommended Lessons and Learning Experiences	<p><i>Teaching Student-Centered Mathematics Grades K-3</i> by John A. Van de Walle (Look in Campus Library or order through i-Bistro District Library Catalog)</p> <p>Measuring Length: Activity 8.1 Longer, Shorter, Same Activity 8.2 Length Hunt Activity 8.3 Crooked Paths Activity 8.4 How Long is the Teacher Activity 8.5 Guess and Measure</p>

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	<p>Mathematics TEKS Toolkit Clarifying Activities Measurement</p> <p>Mathematics TEKS Refinement Sole Mates</p> <p>NCTM Navigations-Navigating Through Measurement Grades PreK-2 (Look in Campus Library or order through i-Bistro District Library Catalog)</p> <ul style="list-style-type: none"> • “Scavenger Hunt” pages 16- 17 • “String Lengths” pages 18-20 <p>NCTM Navigations-Navigating Through Problem Solving Grade K (Look in Campus Library or order through i-Bistro District Library Catalog)</p> <ul style="list-style-type: none"> • “Line up” page 20 <p>Investigations Unit 4: Measuring and Counting</p> <p>enVision MATH Topic 13 13-9 Comparing Areas</p>
Differentiation	<p>English Language Proficiency Standards Student Expectations with Sentence Stems and Activities to support implementation of the Standards (Note: when you open the link, it may ask you for a certificate or if it is OK to open the file, click OK each time you see the screens.)</p> <p>Use Math TEKS Connections strategies from “MTC Rapid Assessments Interpretations” pages 963, 985, 987 to differentiate for more and less depth and complexity</p> <p>Less Depth and Complexity:</p> <ul style="list-style-type: none"> ▪ Comparing Length: if child does not align objects, challenge the child to replicate the length of an object such as cutting a strip of paper the same length to engage in higher level thinking about measurement; model the use of language shorter, shortest, longer, longest and challenge child to follow suit Area: if child does not manipulate figures provide experiences in comparing attributes in various contexts (height of friends, length of blocks, relative size of cookies...); if child places figures side-by-side than provide objects very close in size for comparisons ▪ Extra time to complete tasks ▪ Small group or partner with peer model ▪ Signal (Example: thumbs up/down) to share ideas or answers and to check for understanding ▪ Select answer from given choices ▪ Use pictures and hands on materials to explain vocabulary <p>More Depth and Complexity:</p> <ul style="list-style-type: none"> ▪ Comparing Length: if child aligns objects then give objects that have very small differences in length to appreciate the importance of precision Area: if child places one figure over another to compare s/he is using a very efficient strategy; challenge with

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	<p>objects other than circles (they have only one dimension) Rectangles, triangles require the child analyze more than one dimension when comparing</p> <ul style="list-style-type: none"> ▪ Create own problems beyond grade level expectations ▪ Students use multiple strategies and explanations ▪ Small group (extension)
Instructional Resources	<p>Suggested Manipulatives: Maps rope/twine marked to different lengths for comparison (i.e. 4 Kindergarteners equal the length of a dolphin) real life objects (ex: shoes) shape mats with pattern blocks paper on tables outlines on floor with blue tape foot prints (length, width, area) visuals (clip-art)</p> <p><i>Teaching Student-Centered Mathematics Grades K-3</i> by John A. Van de Walle (Look in Campus Library or order through i-Bistro District Library Catalog)</p> <p>Round Rock ISD Elementary Mathematics Webpage</p>
Assessment Resources	<p>“Rapid Assessments”</p> <ul style="list-style-type: none"> • K.2B Ordinals • K.10 A,B Comparative Measure length, area • Continue assessing K.6B (counting to 100); K.11C (read calendar) <p>Teacher Observation of comparing temperatures Science notebooks Math notebooks</p>